

IN THE CLAIMS:

The status and content of each claim follows.

1. (Currently Amended) A package for a micro-electromechanical device (MEMS package), comprising:

an inner enclosure having an inner cavity defined therein; and

a fill port channel communicating with said inner cavity through said inner enclosure;

wherein said fill port channel comprises a feature internal to said inner enclosure that permits passage of a fluid to said inner cavity, but restricts flow of an adhesive to allow a quantity of adhesive to enter said fill port channel while preventing said adhesive from entering said inner cavity, and wherein said fill port channel narrows gradually so as to taper to a choke point and then gradually widens approaching said inner cavity.

2-4. (Cancelled).

5. (Currently Amended) The MEMS package of claim [[4]] 64, wherein said locking features comprise tapered sections formed on said flow control structure to form a choke point in said fill port channel.

6. (Cancelled).

7. (Previously Presented) The MEMS package of claim 1, further comprising a peninsula that physically separates a portion of said inner cavity from said fill port channel.

8-23. (Cancelled)

24. (Currently Amended) A package for a micro-electromechanical device (MEMS device), comprising:

an inner enclosure having an inner cavity defined therein;  
a fill port channel coupling said inner cavity to an atmosphere; and  
a peninsula in said inner cavity that physically separates a portion of said inner cavity from said fill port channel to control the flow of fluid into said inner cavity[[]]; and  
locking features formed in said fill port channel internal to said inner enclosure, wherein said locking features comprise tapered sections that narrow gradually to a choke point and then gradually widen approaching said inner cavity.

25-31. (Cancelled).

32. (Previously Presented) A micro-electromechanical (MEMS) assembly, comprising:

a MEMS device disposed at least partially within a package;  
said package including an inner enclosure having an inner cavity defined therein, and a fill port channel coupling said inner cavity to an atmosphere and physically separating said atmosphere and said inner cavity by a distance sufficient to allow a variable flow of adhesive to enter said fill port channel while preventing said adhesive from entering said inner cavity;  
an adhesive seal coupled to said fill port channel; and  
a diaphragm disposed in said inner cavity for changing a volume of said inner cavity so as to draw a quantity of said adhesive seal through said fill port channel.

33. (Original) The assembly of claim 32, further comprising a fluid contained within said inner cavity.

34. (Previously Presented) The assembly of claim 33, wherein said fluid comprises a degassed packaging fluid.

35. (Original) The assembly of claim 32, wherein said adhesive is physically separated from said MEMS device by said flow control structure.

36. (Original) The assembly of claim 32, and further comprising locking features formed in said fill port channel and wherein said adhesive seal is locked in said fill port channel by said locking features.

37. (Original) The assembly of claim 32, wherein said adhesive seal comprises a photo resist material.

38. (Original) The assembly of claim 32, wherein said adhesive seal comprises a solder material.

39. (Original) The assembly of claim 32, wherein said adhesive comprises a thermo-set material.

40. (Original) The assembly of claim 32, wherein said adhesive comprises UV curable epoxy.

41. (Original) The assembly of claim 32, wherein said adhesive comprises thermoset epoxy.

42. (Original) The assembly of claim 32, wherein said adhesive comprises moisture/fluid cure adhesive.

43. (Currently Amended) A method of forming a package for a micro-electromechanical device (MEMS device), comprising:

forming an inner enclosure having an inner cavity defined therein;

forming a fill port channel, wherein said fill port channel extends through said inner enclosure so as to be in fluid communication with an atmosphere and said inner cavity and comprises a feature internal to said inner enclosure that permits passage of a fluid to said inner cavity and allows a variable flow of adhesive to enter said fill port channel while preventing said adhesive from entering said inner cavity; and

forming a flow control structure to form said fill port channel and to physically separate said fill port channel from said inner cavity, said flow control structure including locking features formed thereon, wherein said locking features form at least one choke point at an intermediate portion of said fill port channel; and

flowing a quantity of said adhesive through a fill port of said fill port channel and into said fill port channel.

44-53. (Cancelled).

54. (Previously Presented) A micro-electromechanical system (MEMS) package, comprising:

means for containing a MEMS device;

a fluid with said MEMS device in said means for containing said MEMS device;

means for introducing said fluid into an interior cavity of said means for containing said MEMS device;

an adhesive flowed into said means for introducing said fluid; and

means for controlling a flow of said adhesive through said means for introducing said fluid so as to prevent said adhesive from entering said interior cavity; wherein said means for controlling said flow of said adhesive comprise sides of said means for introducing said fluid that narrow gradually so as to taper to a choke point and then gradually widen approaching said interior cavity.

55. (Previously Presented) The package of claim 54, further comprising means for locking said adhesive within said means for introducing said fluid.

56. (Original) The package of claim 55, wherein said means for locking said adhesive includes means for filtering said fluid.

57. (Cancelled).

58. (Currently Amended) The MEMS package of claim ~~[[57]]~~ 65, further comprising an airless interface between said fluid and said adhesive in said fill port channel.

59-63. (Cancelled).

64. (New) A package for a micro-electromechanical device (MEMS package), comprising:

- an inner enclosure having an inner cavity defined therein;

- a fill port channel communicating with said inner cavity through said inner enclosure, wherein said fill port channel comprises a feature internal to said inner enclosure that permits passage of a fluid to said inner cavity, but restricts flow of an adhesive to allow a quantity of adhesive to enter said fill port channel while preventing said adhesive from entering said inner cavity; and

- a flow control structure extending at least partially into said fill port channel and wherein said flow control structure prevents said adhesive from entering said cavity by physically obstructing a portion of said fill port channel, wherein locking features are formed on said flow control structure, and wherein said locking features cause said fill port channel to have a variable cross section.

65. (New) A package for a micro-electromechanical device (MEMS package), comprising:

an inner enclosure having an inner cavity defined therein;

a fluid filling said inner enclosure;

a fill port channel communicating with said inner cavity through said inner enclosure;

wherein said fill port channel comprises a feature internal to said inner enclosure that permits passage of a fluid to said inner cavity, but restricts flow of an adhesive to allow a quantity of adhesive to enter said fill port channel while preventing said adhesive from entering said inner cavity; and

at least one diaphragm disposed in said inner cavity for changing a volume of said inner cavity so as to draw a quantity of said adhesive through said fill port channel.

66. (New) A package for a micro-electromechanical device (MEMS device), comprising:

an inner enclosure having an inner cavity defined therein;

a fill port channel coupling said inner cavity to an atmosphere;

a peninsula in said inner cavity that physically separates a portion of said inner cavity from said fill port channel to control the flow of fluid into said inner cavity;

a fluid filling said inner enclosure;

an adhesive in said fill port channel to seal said fill port channel;

an airless interface between said fluid and said adhesive in said fill port channel; and

at least one diaphragm disposed in said inner cavity for changing a volume of said inner cavity so as to draw a quantity of said adhesive through said fill port channel.

67. (New) A package for a micro-electromechanical device (MEMS device), comprising:

an inner enclosure having an inner cavity defined therein;

a fill port channel coupling said inner cavity to an atmosphere, wherein said fill port channel narrows gradually so as to taper to a choke point and then gradually widens approaching said inner cavity; and

a peninsula in said inner cavity that physically separates a portion of said inner cavity from said fill port channel to control the flow of fluid into said inner cavity.

68. (New) A method of forming a package for a micro-electromechanical device (MEMS device), comprising:

forming an inner enclosure having an inner cavity defined therein;

forming a fill port channel, wherein said fill port channel extends through said inner enclosure so as to be in fluid communication with an atmosphere and said inner cavity and comprises a feature internal to said inner enclosure that permits passage of a fluid to said inner cavity and allows a variable flow of adhesive to enter said fill port channel while preventing said adhesive from entering said inner cavity;

forming a flow control structure to form said fill port channel and to physically separate said fill port channel from said inner cavity, said flow control structure including locking features formed thereon, wherein said locking features comprise a plurality of gradually tapered sections which form a choke point at an intermediate portion of said fill port channel; and

flowing a quantity of said adhesive through a fill port of said fill port channel and into said fill port channel.